POS MALAYSIA SHIPPING SERVICE (PMSS)

TAN JIAWEI

UNIVERSITY TEKNIKAL MALAYSIA MELAKA



BORANG PENGESAHAN STATUS TESIS*

JUDUL:
SESI PENGAJIAN:
Saya(HURUF BESAR)
 mengaku membenarkan tesis (PSM/Sarjana/Doktor Falsafah) ini disimpan di Perpustakaan Fakulti Teknologi Maklumat dan Komunikasi dengan syarat-syarat kegunaan seperti berikut: Tesis dan projek adalah hakmilik Universiti Teknikal Malaysia Melaka. Perpustakaan Fakulti Teknologi Maklumat dan Komunikasi dibenarkan membuat salinan untuk tujuan pengajian sahaja. Perpustakaan Fakulti Teknologi Maklumat dan Komunikasi dibenarkan membuat salinan tesis ini sebagai bahan pertukaran antara institusi pengajian tinggi. ** Sila tandakan (/)
SULIT(Mengandungi maklumat yang berdarjah keselamatan atau kepentingan Malaysia seperti yang termaktub di dalam AKTA RAHSIA RASMI 1972)TERHAD(Mengandungi maklumat TERHAD yang telah ditentukan oleh organisasi/badan di mana penyelidikan dijalankan)TIDAK TERHAD
(TANDATANGAN PENULIS) (TANDATANGAN PENYELIA) Alamat tetap:
Tarikh: Tarikh:
CATATAN: * Tesis dimaksudkan sebagai Laporan Akhir Projek Sarjana Muda(PSM) ** Jika tesis ini SULIT atau TERHAD, sila lampirkan surat daripada pihak berkuasa.

POS MALAYSIA SHIPPING SERVICE (PMSS)

TAN JIAWEI

This report is submitted in partial fulfilment of the requirements for the Bachelor of Computer Science (Software Development)

UNIVERSITY TEKNIKAL MALAYSIA MELAKA

C Universiti Teknikal Malaysia Melaka

DECLARATION

I hereby declare that this project report entitled

POS MALAYSIA SHIPPING SERVICE

is written by me and is my own effort and that no part has been plagiarized

without citations.

STUDENT:		Date:
	(TAN JIAWEI)	
SUPERVISOR:		Date:
	(Dr. Azah Kamilah bt Draman @Muda)	

ii

C Universiti Teknikal	Malaysia	Melaka
-----------------------	----------	--------

DEDICATION

This finest work is dedicated to my supervisor Dr.Azah, who guided me throughout the process of the work and offered advices, and to my parents, who give me enlighten my mind whenever I think that I have unrefined ideas.



ACKNOWLEDGEMENT

I really feel grateful because of my family who have been giving my supports when the time is rough and giving advices like be optimism and enjoy the moment throughout the project.

Last but not least, I would like to express my gratitude to my supervisor, Dr. Azah Kamilah bt Draman @Muda, who for assist me in finish this project successfully. She guides me for the presentation of this mobile application and monitoring throughout the project.

iv



ABSTRACT

Nowadays, there are still people writing letters and send usable items using the services provided POS Malaysia. But the problems I found at POS Malaysia Berhad are the hotline call service only operates during office hours. The current system is having encountered a little problem for senior citizens, homemakers and the physically challenged. Other than that, post office lack of efficiency using manual forms. It is time consuming for the users who queue up in office to wait for their turns. The objectives of this PMSS project are to enhance convenience for user to send parcels by requesting shipping service. Besides, this project able to enhance the efficiency for customers make shipping request at their place. PMSS is able to reduce the cost on manual forms since everything was organized using mobile application. Lastly, an organized webpage will be implements for the post office. I'm using Agile Methodology for my PMSS project since it's the quickest way to obtain stakeholder feedback and do the modification of my projects. By using this method, I was able to know post office policy and their work procedure and business process. The expected output for this project is client able to request shipping service by using mobile applications. Clients will only have to fill in their receiver details and wait for the postman to collect their parcels. A tracking system will allow the clients to keep track of their parcel status. Payment can be made using mobile application. Staff able to view the requested shipment list that made by user.

ABSTRAK

Pada masa kini, masih terdapat orang menulis surat dan menghantar barangbarang yang boleh digunakan dengan menggunakan perkhidmatan yang disediakan POS Malaysia. Tetapi masalah saya dapati di POS Malaysia Berhad adalah perkhidmatan panggilan hotline hanya beroperasi pada waktu pejabat. Sistem semasa telah mengalami sedikit masalah untuk warga emas, suri rumah dan yang mencabar fizikal. Selain itu, kekurangan pejabat pos kecekapan menggunakan borang manual. Ia memakan untuk pengguna yang beratur di pejabat menunggu giliran mereka masa. Objektif projek PMSS ini adalah untuk meningkatkan kemudahan bagi pengguna untuk menghantar bungkusan dengan meminta perkhidmatan perkapalan. Selain itu, projek ini dapat meningkatkan kecekapan untuk pelanggan membuat permintaan perkapalan di tempat mereka. PMSS mampu mengurangkan kos pada bentuk manual kerana semuanya telah dianjurkan menggunakan aplikasi mudah alih. Akhir sekali, laman web yang teratur akan menjadi alat untuk pejabat pos. Saya menggunakan kaedah yang tangkas bagi projek PMSS saya kerana ia adalah cara terpantas untuk mendapatkan maklum balas pihak berkepentingan dan melakukan pengubahsuaian projek-projek saya. Dengan menggunakan kaedah ini, saya telah dapat tahu dasar pejabat pos dan proses perniagaan dan prosedur kerja mereka. Output yang diharapkan untuk projek ini adalah pelanggan boleh meminta perkhidmatan penghantaran dengan menggunakan aplikasi mudah alih. Pelanggan hanya perlu mengisi butir-butir penerima mereka dan menunggu posmen untuk mengumpul petak mereka. Sistem pengesanan akan membolehkan pelanggan untuk mengesan status bungkusan mereka. Bayaran boleh dibuat menggunakan aplikasi mudah alih. Kakitangan dapat melihat senarai penghantaran yang diminta yang dibuat oleh pengguna.

TABLE OF CONTENTS

CHAPTER	SUBJECT		PAGE
---------	---------	--	------

DECLARATION	i ii
DEDICATION	iii
ACKNOWLEDGEMENTS	iv
ABSTRACT	V
ABSTRAK	vi
TABLE OF CONTENTS	vii x
LIST OF TABLES	xi xii
LIST OF FIGURES	xiii xv
LIST OF ABBREVATION	xvi
LIST OF ATTACHMENT	xvii

CHAPTER I INTRODUCTION

1.1	Project Background	1
1.2	Problem Statement	2
1.3	Objective	3
1.4	Problem Scope	3
1.5	Project Significant	5
1.6	Expected Output	5
1.7	Conclusion	5

CHAPTER II	LITI	ERATURE REVIEW AND	
	MET	THODOLOGY	
	2.1	Introduction	6
	2.2	Fact and Finding	7
		2.2.1 Domain	7
		2.2.2 Existing system	10
		2.2.3 Development of Mobile	
		Application	11
		2.2.4 Technique	14
	2.3	Project Methodology	15
		2.3.1 Phases in Agile	
		Methodology	17
	2.4	Project Requirement	18
		2.4.1 Software Requirement	19
		2.4.2 Hardware Requirement	20
		2.4.3 Other Requirement	21
	2.5	Project Schedule and	
		Milestones	21
	2.6	Conclusion	22

CHAPTER III ANALYSIS

3.1	Intro	23	
3.2	Prob	lem Analysis	24
3.3	Requ	24	
	3.3.1	Data Requirement	25
	3.3.2	Functional	
		Requirement	30
	3.3.3	Non- Functional	
		Requirement	51
	3.3.4	Other Requirement	54
3.4	Conc	lusion	56

CHAPTER IV DESIGN

4.1	Introc	57	
4.2	High-	High-Level Design	
	4.2.1	System Architecture	58
	4.2.2	User Interface Design	61
	4.2.3	Navigation Design	76
	4.2.4	Input Design	77
	4.2.5	Output Design	84
	4.2.6	Database Design	85
		4.2.6.1 Conceptual and	
		Logical Design	86
4.3	Detail	ed Design	86
	4.3.1	Software Design	86
	4.3.2	Physical Database Design	88
4.4	Concl	usion	95

CHAPTER V IMPLEMENTATION

5.1	Introduction	96
5.2	Software Development	
	Environment setup	97
5.3	Software Configuration	
	Management	98
	5.3.1 Configuration environmen	t
	setup	99
	5.3.2 Version Control Procedure	e 100
5.4	Implementation Status	102
5.5	Conclusion	104

CHAPTER VI TESTING

6.1	Introduction		
6.2	Test Plan	106	
	6.2.1 Test Organization	106	
	6.2.2 Test Environment	107	
	6.2.3 Test Schedule	108	
6.3	Test Strategy	109	
	6.3.1 Classes of tests	110	
6.4	Test Design	111	
	6.4.1 Test Description	111	
	6.4.2 Test Data	111	
6.5	Test Results and Analysis	112	
6.6	Conclusion		

CHAPTER VII CONCLUSION

7.1	Observation on Weaknesses			
	Strengths	116		
7.2	Propositions for Improvement	117		
7.3	Contribution	118		
7.4	Conclusion	118		

REFERENCE	119
BIBLIOGRAPHY	120
APPENDICES	121

х

LIST OF TABLES

TABLE	TITLE	PAGE
1.1	The objectives of the project	3
2.1	Comparison between existing parcels	
	delivery systems	10
3.1	Parcel Data Dictionary	25
3.2	Indexes for parcel table	25
3.3	Shipment Request Data Dictionary	26
3.4	Indexes for shipment request table	26
3.5	Staff Data Dictionary	27
3.6	Indexes for staff table	27
3.7	User Data Dictionary	28
3.8	Indexes for user table	28
3.9	Zone Data Dictionary	29
3.10	Indexes for zone table	29
3.11	PMSS Functional Requirements	30
3.12	PMSS Integrity Requirements	51
3.13	PMSS Reliability Requirements	51
3.14	PMSS Availability Requirements	52
3.15	PMSS Usability Requirements	52
3.16	PMSS Security Requirements	53
3.17	PMSS Portability Requirements	53
5.1	Development Environment for PMSS	98
5.2	Version Control Procedure	101

5.3	Implementation Status	102
6.1	Test Environment Specification	107
6.2	Test Schedule	108
6.3	Black Box Testing and White Box Testing	
	Test Classes	109
6.4	Test Results and Analysis	112
7.1	System Strength and Weaknesses	116
7.2	Proposition for Improvement	117

xii

LIST OF FIGURES

DIAG	RAM TITLE	PAGE
2.1	Track and Trace solution chart	8
2.2	System Development of Life Cycle of	

	• • •	
	Agile Methodology	17
3.1	Use case diagram of PMSS	33
3.2	Primary Flow for User Registration	34
3.3	Exceptional Flow for User Registration	35
3.4	Primary Flow for User Account	36
3.5	Exceptional Flow for User Account	37
3.6	Primary Flow for Staff Account	37
3.7	Exceptional Flow for Staff Account	38
3.8	Primary Flow for Request Shipping Service	38
3.9	Exceptional Flow for Request Shipping Service	39
3.10	Primary Flow for Make Payment using Online	
	Banking	40
3.11	Alternative Flow for Make Payment using Card	41
3.12	Alternative Flow for Make Payment using Cash	42
3.13	Exceptional Flow for Make Payment	43
3.14	Primary Flow for Track Parcel (User)	44
3.15	Exceptional Flow for Track Parcel (User)	44
3.16	Primary Flow for Track Parcel (Staff)	45
3.17	Exceptional Flow for Track Parcel (Staff)	45

3.18	Primary Flow for Check card balance	46
3.19	Primary Flow for Check request shipment list	46
3.20	Exceptional Flow for Check request shipment list	47
3.21	Primary Flow for Collect Parcel	47
3.22	Exceptional Flow for Collect Parcel	48
3.23	Primary Flow for Fill in parcel information	48
3.24	Exceptional Flow for Fill in parcel information	49
3.25	Primary Flow for Register Staff Account	49
3.26	Exceptional Flow for Register Staff Account	50
3.27	Primary Flow for View Summary Report	50
4.1	System Architecture of mobile application and	
	webpage	58
4.2	User Class Diagram	59
4.3	Staff Class Diagram	60
4.4	Interface for Login Page	61
4.5	Interface for Register Page	62
4.6	Interface for Register Page (Continue)	62
4.7	Interface for Main Menu Page	63
4.8	Interface for User Info Page	64
4.9	Interface for Request Shipping Service Page	65
4.10	Make Payment Page	66
4.11	Make Payment Page (Continue)	66
4.12	Interface for Track Parcel page	67
4.13	Interface for Check card balance page	68
4.14	Interface Staff Main Menu page	69
4.15	Staff Info page	70
4.16	Staff Info page (Continue)	70
4.17	Interface for Fulfil Request page	71
4.18	Interface for Shipment List page	72
4.19	Interface for Staff Track Parcel page	73
4.20	Interface for Staff Map Tracking page	74
4.21	Interface for Register Staff and View Report page	75
4.22	Navigation of the Interface for mobile application	
	and webpage	76

4.23	The brief summary report of PMSS	84
4.24	Context Diagram for Webpage	85
4.25	Data Flow Diagram (DFD) for Webpage	85
4.26	6 Entity Relationship Diagram (ERD) for PMSS	
	and Webpage	86
5.1	Software Environment Setup	97
5.2	The XAMPP software used for web	
	and database server	99
5.3	phpMyAdmin software used for MySQL	100

XV

LIST OF ABBREVIATION

ADL	-	Architecture description languages
ADT	-	Android Developer Tools
API	-	Application Programming Interface
APK	-	Android Application Package
BTREE	-	Binary Tree
DBMS	-	Database Management System
GUI	-	Graphical User Interface
IDE	-	Integrated Development Environment
NIC	-	Network Interface Card
OS	-	Operating System
PMSS	-	POS Malaysia Shipping Service
PSM	-	Projek Sarjana Muda
RAM	-	Random Access Memory
SCM	-	Software Configuration Management
UAT	-	User Acceptance Testing
varchar	-	Variable Character Field

LIST OF ATTACHMENT

ATTACHMENT	TITLE	PAGE
APPENDICES A	PROJECT TIMELINE	121
APPENDICES B	POS MALAYSIA REFERENCE	
	ATTACHMENT	123
APPENDICES C	TEST CASES AND TEST DATA	126

CHAPTER I

INTRODUCTION

1.1 Project Background

Nowadays, a lot of people send their messages or attachments through electronic mail instead of writing letters because they need to send the letters to the post office and it take times for the receiver to receive it. But if they want to send their usable items to their friends and relatives, they still need to send it to post office to process it because currently, we cannot send items using electronic mail. That is why POS Malaysia still has the letter and parcel shipping service protocol throughout the world. We embark into the 21st century, the postal service in Malaysia, widely known as POS Malaysia Berhad.

POS Malaysia seeks an integrated solution towards more efficient ways to get things done in timely manner. POS Malaysia has the system that is able to help staffs with their work and help customer to process their letter or parcel shipment. The staffs work every day to make sure the letters or parcels are being delivered successfully. Customers may need to deliver their parcels to someone else but they may unable to go to the post office to send their parcels. A call to the post office is easier for them since the POS Malaysia will send representatives to collect their shipment items. The main problem of this issue is the operating hours is not 24 hours therefore making it quite troublesome for businessman as they need to request the POS Malaysia to help them take the items from their places. To ease up the workload of the staff and fulfill the satisfaction of customer, we introduce you a mobile application named "POS Malaysia Shipping Service (PMSS)".

PMSS understands the problems caused by the customer service operation hours and believes it can provide POS Malaysia with the most suitable cost-effective solution. Our mobile application provides efficient and upgradable platforms which are easy to utilize, manage, and modify. Once the solution is implemented, our clients have access to 24-hours support throughout the life of the service. A team of experts is always on hand to assist our clients and we pride ourselves on the exception customer support that we offer. Other than that, PMSS will send notifications to the sender about their shipments are being sent and the shipment is delivered to receiver. PMSS able to let users to know their history of shipments they have made.

PMSS is confident that it can support POS Malaysia in order to meet its longterm goals.

1.2 Problem Statement

- The hotline service only operates during office hours which are inconvenient for those who do online shopping business.
- It is difficult for customer to know their parcel status without being informed by post office staff.
- Lack of efficiency using manual forms.
- Time consuming for the users who queue up in office to wait for their turns.

🔘 Universiti Teknikal Malaysia Melaka

1.3 Objective

The PMSS mobile application directly supports several goals and objectives. The following table lists the business goals and objectives that the PMSS mobile application supports and how it supports them:

Business Goal/Objective	Description
24 hour operation	Shipment Requests can be made by customers any time of the day
Track items	Customer will be able to track their items using the mobile app
Timely and accurate reporting	Online mobile based tool will allow real-time and accurate reporting of all requests made by customers.
Improve staff efficiency	More staff required for managing these activities will improve efficiency

Table 1.1: The objectives of the project

1.4 Project Scope

The scope of PMSS mobile application project includes the planning, design, development, and testing. This mobile application will meet or exceed the standards and additional requirements established in the project charter. The scope of this project also includes completion of all documentation, manuals, and training aids to be used in conjunction with the software. Project completion will occur when the mobile application and documentation package has been successfully executed and transitioned to POS Malaysia before releasing the application.

All PMSS mobile application project work will be performed internally and no portion of this project will be outsourced. The scope of this project does not include any changes in requirements to standard operating systems to run the application, update the application or revise the application.

Users:

Online Shipping Service targets to business users and the public.

Modules:

Module I: User and Staff Account Info Module

This module will allow users and staff to check and update their information in their account.

Module II: Request Shipping Service Module

This module accept user request that user wish to do their shipping with simple information date, owner address and destination address.

Module III: Track Parcel Module

This module will allow both users and staff to track the parcels status by using the Parcel ID. User able to know the location of parcel whether it is in which Pos Laju station with the map guidance.

Module IV: Payment Module

This module will inform that the user have to pay the shipment fees before the office staff begin shipment delivery. Users can also pay the shipment fees through online.

Module V: Fulfil Request Module

This module will allow staff to check the existence of the parcel using the Parcel Id before filling in details of the parcel sent to calculate total payment to be made.

1.5 **Project Significance**

Due to the increase number of transport in our life will cause the incident of traffic jam. The POS Malaysia will come to your house to retrieve the items for shipping service which will not need user to bring their shipment items to the post office. The sender get to inform by the mobile phone application once the shipment is arrived and received by receiver.

1.6 Expected Output

The expected output for my project is client able to request shipping service by using PMSS mobile applications. Clients will only have to fill in their receiver details and wait for the postman to collect their parcels. A tracking system will allow the clients to keep track of their parcel status. Payment can also be made using mobile application. Staff is able to view the requested shipment list that made by user and fill in the remaining parcel information while at user current place before send to post office for packaging.

1.7 Conclusion

This mobile application would be very helpful to the users that will help them reduce outing time of just only to bring their shipment items to post office. User does not need to wait the post office staff to inform them about the arrival shipment. The application process can be done with just a few taps/clicks on mobile phone. It is a lot easier and efficient that this message will be informed by mobile apps.